TECHNICAL REVIEW DOCUMENT
for
MODIFICATION TO OPERATING PERMIT 96OPRO132

Public Service Co – Hayden Station
Routt County
Source ID 1070001

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Revised January 2010

I. Purpose:

This document establishes the decisions made regarding the requested modification to the Operating Permit for Public Service Company's Hayden Station. This document provides information describing the type of modification and the changes made to the permit as requested by the source and the changes made due to the Division's analysis. This document is designed for reference during review of the proposed permit by EPA and for future reference by the Division to aid in any additional permit modifications at this facility. The conclusions made in this report are based on the information provided in the request for modification submitted to the Division on August 14, 2009, e-mail correspondence and telephone conversations with the source. This narrative is intended only as an adjunct for the reviewer and has no legal standing.

Any revisions made to the underlying construction permits associated with this facility made in conjunction with the processing of this operating permit application have been reviewed in accordance with the requirements of Regulation No. 3, Part B, Construction Permits, and have been found to meet all applicable substantive and procedural requirements. This operating permit incorporates and shall be considered to be a combined construction/operating permit for any such revision, and the permittee shall be allowed to operate under the revised conditions upon issuance of this operating permit without applying for a revision to this permit or for an additional or revised construction permit.

II. Description of Permit Modification Request/Modification Type

The Operating Permit for the Hayden Station was issued on May 1, 2001 and was renewed on April 1, 2009. Public Service Company (PSCo) submitted a request to modify the permit on August 14, 2009. The purpose of the modification is to construct and operate a new rail car unloading station and conveyor system with a design capacity of 2,800 tons/hr. The existing truck unloading and conveying system has a design capacity of 1,400 tons/hr. The new rail car unloading system will be a drive through enclosure and the conveyor will convey coal to a new single missile stacking system (i.e. lowering well) that serves both Units 1 and 2. In addition, two new crushers will be installed under the existing reclaim feeders that will discharge to the existing

reclaim conveyors to Units 1 and 2. The new crushers will be enclosed and located in an underground tunnel under the coal pile. The existing truck unloading system, crushers, conveyors and stacking missiles will be removed from service and demolished as part of the project.

Colorado Regulation No. 3, Part C, Section X.A identifies those modifications that can be processed under the minor permit modification procedures. Specifically, minor permit modifications "are not otherwise required by the Division to be processed as a significant modification" (Colorado Regulation No. 3, Part C, Section X.A.6). The Division requires that "any change that causes a significant increase in emissions" be processed as a significant modification (Colorado Regulation No. 3, Part C, Section I.B.36.h.(i)). According to Part G of Regulation No. 3 (Section I.L, revisions adopted July 15, 1993, Subsection I.G for modifications) the Division considers that a significant increase in emissions is the potential to emit above the PSD significance levels (15 tons/yr of PM_{10} and 25 tons/yr of PM). Although the requested emissions (including uncontrolled emissions) are below the PSD significance levels, the proposed new rail car unloading system, associated conveyor, lowering well and crushers are subject to the new source performance standards (NSPS) in 40 CFR Part 60 Subpart Y.

Colorado Regulation No. 3, Part C, Section I.A.7.b specifies that "any change that is considered a modification under Title I of the act" must be processed as a significant modification. According to Part G of Regulation No. 3 (Section I.L, revisions adopted July 15, 1993, Subsection I.G for modifications) the Division considers that "a Title I modification" is a modification that triggers New Source Performance standards. Since the new rail car unloading station, associated conveyor, lowering well and crushers trigger NSPS requirements, these revisions must be processed as a significant modification.

III. Modeling

Requested PM_{10} emissions from the new railcar unloading system, associated conveyor, lowering well and crushers are 2.07 tons/yr. Requested emissions from the proposed modification represent a decrease in emissions from the equipment it is replacing due to the enclosure on the proposed new railcar unloading system, fewer drop/transfer points from the unloader to the pile and coal will only be crushed once. In addition, the rail car unloading system will be located further from the fence line than the current truck unloading system. Considering the requested level of emissions for this equipment and the proximity of the proposed new equipment/activities to the fence line, the Division considers that this project is unlikely to cause or contribute to an exceedance of the NAAQS/CAAQS

IV. Discussion of Modifications Made

Source Requested Modifications

The Division addressed the source's requested modifications as follows:

Proposed New Rail Car Unloading System, Conveyors and Crushers

Coal is currently delivered by truck to the Hayden facility. This modification is for the construction and operation of a rail car unloading system will allow coal to be unloaded by rail or truck. The rail car unloader will be a bottom dump system, enclosed on three sides (2 sides and a roof) and will allow either rail cars or trucks to be unloaded. In the current system, after coal is unloaded from trucks it is processed through two crushers and can be unloaded to the pile via two separate loading missiles. In this proposed modification, once coal is unloaded it is conveyed directly to one lowering well (no crushing prior to storage) where it is unloaded to the pile. As part of the proposed project, two crushers will be installed under the existing reclaim feeders and coal will be crushed just before is it deposited on the existing reclaim conveyors.

1. Applicable Requirements –The addition of the new crushers, rail car unloader, associated conveyor and lowering well will be processed as a combined construction/operating permit as provided for in Colorado Regulation No. 3 Part C, Sections IA.7 and III.B.7. Provisions for the rail car unloader, conveyor and lowering well will be included in Section II, Condition 3 of the permit, while the requirements for the new crushers will be addressed in Section II, Condition 4 of the permit. The appropriate applicable requirements are as follows:

- Coal processing rate shall not exceed the following:
    - 2,300,00 tons/yr coal unloaded to pile (as requested by the APEN submitted on August 14, 2009).
    - 2,100,000 tons/yr coal from pile to Units 1 and 2 (as requested by the APEN submitted on August 14, 2009)
- Emissions of air pollutants shall not exceed the following limitations (as requested by the APEN submitted on August 14, 2009):

  Rail Car Unloader, Conveyor and Unload to Pile
    - PM 3.70 tons/yr
    - PM_{10} 1.75 tons/yr

  Crushers
    - PM 1.05 tons/yr
    - PM_{10} 0.32 tons/yr

  In addition, as part of this modification, the Division revised the emission limitations for the 1973 coal handling equipment. The 1973 coal handling portion covered coal load-out from missile 3B, as well as coal reclaimed from the pile. Since missile 3B is being replaced with the new lowering well, the load-out of coal to the pile is covered under the permitted emissions for the new coal

unloader. In addition, when the original 1973 equipment was permitted, credit was not taken for the covered conveyors. Therefore, the following revised emission limitations were included in the permit for the 1973 portion of the coal handling system: PM – 0.40 tons/yr, PM_{10} – 0.20 tons/yr. These emission limitations are based on 4 transfer points, the emission factors included in the current permit and a wind speed of 1 mph to simulate a covered conveyor.

- Construction of this source must commence within 18 months of initial approval permit issuance date or within 18 months of date on which such construction or activity was scheduled to commence as stated in the application (Reg 3, Part B, Section III.F.4.a.(i) thru (ii)).

- Within 180 days after commencement of operation, compliance with the conditions contained on this permit shall be demonstrated to the Division (Reg 3, Part B, Section III.G.2).

- The permittee shall notify the Division, in writing, thirty (30) days prior to startup (Reg 3, Part B, Section III.G.1).

- 20% opacity (Regulation No. 1, Section II.A.1)

  Based on engineering judgment, the Division has not included the 30% opacity requirement for startup, process modification and adjustment of control equipment (Reg 1, Section II.A.4) for the following reasons: 1) startup is instantaneous (begin conveying and/or crushing); 2) process modifications are unlikely since the process of conveying or crushing is straightforward and if modifications were to occur, they could not occur while the unit is in operation (i.e. conveying and/or crushing) and 3) the control equipment cannot be adjusted while conveying or crushing is occurring. The other specific conditions under which the 30% opacity standard in Reg 1, Section II.A.4 apply (e.g. fire-building, cleaning of fireboxes and soot blowing) are not applicable as they relate to fuel burning sources.

- Rail Car Unloader and unload to pile only: Fugitive dust control plan requirements in Colorado Regulation No. 1, Section II.D.1.b.

  No Reg 1 particulate matter requirements do not apply to the crushers or the new conveyor from the rail car unloader to the lowering well, since the Division doesn't consider coal crushing or conveying to be manufacturing processes, (PM requirements - Reg 1, Section III.C) because the coal is not manufactured into a product but is used as fuel in fuel burning equipment which has PM requirements in Reg 1, Section III.A.

- Standards of Performance for Coal Preparation Plants (40 CFR Part 60 Subpart Y, as adopted in Colorado Regulation No. 6, Part B), specifically:

  Revisions were made to the NSPS Subpart Y requirements on October 8, 2009.

These revisions apply to the proposed project at Hayden Station.

Coal Unloader, Associated Conveyor and Lowering Well

- The owner or operator of an open storage pile, which includes the equipment used in the loading, unloading and conveying operations of the affected facility must prepare and operate in accordance with a fugitive coal dust emissions control plan that is appropriate for the site conditions (§ 60.254(c))

- Equipment used in the loading, unloading and conveying operations of open storage piles are not subject to the opacity limitations in § 60.254(b)(1) (§ 60.254(b)(3))

Crushers

- The owner or operator shall not cause to be discharged into the atmosphere from any coal processing and conveying equipment, coal storage system or coal transfer and loading system processing coal constructed, reconstructed or modified after April 28, 2008, gases which exhibit 10% opacity or greater (§ 60.254(b)(1)).

  Note that as specified in 40 CFR Part 60 Subpart A § 60.11(c), the opacity standards apply at all times except during periods of startup, shutdown and malfunction.

- Performance test requirements in §§ 60.255(a) and (b)(2)

  Note that the requirements in § 60.255(b)(2)(iii) were not included as these requirements only apply to sources equipped with scrubbers.

  Note that the Division did not include the requirements in §§ 60.255(c) (sources located in a building are in compliance with opacity requirements if the building is in compliance with opacity requirements), (f) (alternative monitoring – daily visible emissions), and (g) (alternative monitoring – COMS) because the crushers aren't located in a building and it is not expected that the source will choose to use either of the alternative monitoring methods.

  Although there are monitoring requirements included in § 60.255(h) for coal dump truck operations, the Division considers that these requirements do not apply to the proposed new rail car unloader when trucks are dumped there for two reasons. In the first case, coal unloaded at the rail car unloader is conveyed to the coal pile, and as specified in § 60.254(a)(3), equipment used in the loading, unloading and conveying operations of open storage piles are not subject to opacity limitations. In the second case, the trucks to be unloaded at this facility are bottom dump trucks, while the trucks addressed in § 60.255(h) are not.

- Test methods and procedures specified in 40 CFR Part 60 Subpart Y §

60.257(a)(1) and (3).

- Reporting and recordkeeping requirements in §§ 60.258(b)(3) and (c).

Both the rail car unloader, associated conveyor, lowering well and crushers are subject to the recordkeeping and reporting requirements in § 60.258(a).

In addition, the general provisions in 40 CFR Part 60 Subpart A, also apply, as follows:

- Written notification of construction and startup (§§ 60.7(a)(1) and (3))
- Good practices (§ 60.11(d)).
- Circumvention (§ 60.12).
- Conduct performance test in accordance with provisions of §§ 60.8 and 60.11 **– Crushers only**
- Record startups, shutdown and malfunctions (§ 60.7(b))
- Written notification of opacity observation required by § 60.7(a)(6) **– Crushers only**

2. Emission Factors - Approval of emission factors is necessary to the extent that emission factors shall be used to monitor compliance with the annual emission limits The source identified the following emission factors:

A. Coal Conveying: There are no specific emission factors for conveying coal. Therefore, the source proposed to estimate emissions from coal conveying as emissions from each of the drop or transfer points in conveying coal. The Division believes that this is a reasonable method to estimate emissions from coal conveying. The source proposed to use emission factors for drop/transfer points from AP-42 (dated November 2006), Section 13.2.4. Emissions from each transfer point (dropping material on a received surface) can be estimated using the following equation:

$$E = \frac{k \times 0.0032 \times (U/5)^{1.3} \times D \times \text{tons of coal transferred per year}}{(M/2)^{1.4}}$$

Where: E = particulate emissions, lbs/yr
k = particle size multiplier, dimensionless
U = mean wind speed, mph
D = number of transfer points, dimensionless
M = moisture content, %

Note that permitted emissions from the new enclosed conveyor associated with the rail car unloading station are based on one (1) transfer point, a wind speed of 1 mph, a moisture content of 4.5% (based on AP-42, Section 13.2.4, Table 13.2.4-1) and a coal processing rate of 2,300,000 tons/yr. Permitted emissions from the unenclosed portions of the new equipment (unloading at rail car unloader and transfer of coal from lowering well to pile) are based on two (2) transfer points, a wind speed of 8.7 mph, a moisture

content of 4.5% (based on AP-42, Section 13.2.4, Table 13.2.4-1) and a coal processing rate of 2,300,000 tons/yr.

The coal processing rate of 2,300,000 tons/yr is the currently permitted processing rate for missile 3B, which is capable of depositing all of the coal received at the plant onto the existing pile.

The 1 mph wind speed in the above equation is to simulate the control provided by the covered conveyor and drop point. Although the rail car unloader is enclosed on three sides (two walls and a roof), no credit was taken in the emission calculations for the reduction in PM emissions that the enclosure will provide.

B. Coal Crushing: The source proposed to use emission factors from EPA's WebFIRE (SCC 3-05-010-10). The emission factors are as follows:

Pollutant	Emission Factor
PM	0.02 lbs/ton coal
PM_{10}	0.006 lbs/ton coal

Note that permitted emissions are based on a maximum coal processing rate of 2,100,000 tons/yr and a 95% efficiency since the crushers are enclosed and located in an underground tunnel.

Emission Summary for New Rail Car Unloader Crushers and Revised Coal Conveyors

	Controlled Emissions (tons/yr)		Uncontrolled Emissions (tons/yr)	
Source	PM	PM_{10}	PM	PM_{10}
Crushers	1.05	0.32	21	6.3
Rail Car Unloader, Conveyor and Unload to Pile	3.70	1.75	3.70	1.75
Total	4.75	2.07	24.7	8.05

3. Monitoring Plan - The source will be required to monitor and record the quantity of coal processed through the rail car unloader monthly in order to monitor compliance with the annual limitation. Compliance with the annual emission limits for the rail car unloader will be presumed, in the absence of credible evidence to the contrary, provided the fugitive control measures are met, the conveyor enclosures are maintained and that the coal processing limit is not exceeded. The source will also be required to monitor and record the quantity of coal processed through the crushers and to calculate emissions monthly. Performance testing will be conducted on the crushers as required by the provisions in NSPS Subpart Y.

Other Modifications

In addition to the requested modifications made by the source, the Division used this

opportunity to include changes to make the permit more consistent with recently issued permits, include comments made by EPA on other Operating Permits, as well as correct errors or omissions identified during inspections and/or discrepancies identified during review of this modification.

The Division has made the following revisions, based on recent internal permit processing decisions and EPA comments on other permits, to the Hayden Station Operating Permit with the source's requested modifications. These changes are as follows:

Section I, Condition 6.1

- Removed the third column labeled "Facility ID", as the ID number is the same as that in the first column. The first column was relabeled "Emission Unit No./Facility ID".

Section II.1 – Coal-Fired Boilers

- Revised the last paragraph in Condition 1.1.2 to better describe the calculated average opacity value.

- Added Condition 1.1.3 to indicate that the CAM requirements in Section II, Condition 1.18 shall be used to monitor compliance with the particulate matter requirements in Condition 1.1.

- Included the PM emission factors from the latest performance test (conducted in June 2009) in Condition 1.2.

- Added the baseline opacity levels in Condition 1.18.1.2 (CAM requirements).

Section II.3 – Particulate Matter Emissions - Fugitive Sources

- This section of the permit was reformatted to include all the Reg 1 fugitive particulate matter requirements in Condition 3.2 and to that end the fugitive control measures in Conditions 3.5 and 3.6 were included in Condition 3.2.2.

- Added the following statement to Condition 3.2.1 (with formatting changes, this condition is renumbered as 3.2.3): 1 "[t]he 20% opacity, no off-property transport, and nuisance emission limitations are guidelines and not enforceable standards and no person shall be cited for violation thereof pursuant to C.R.S. 25-7-115."

- Clarified Condition 3.5.1 (with formatting changes, this condition is renumbered as 3.2.2.1.a) to indicate that the dust collection method is enclosures.

Section II.4 – Particulate Matter Emissions – Ash and Coal Handling

- Updated version date and emission factor source for transfer point and crusher

emission factors in Condition 4.2.

Section II.12 – Continuous Emissions Monitoring System Requirements

During the processing of the Title V renewal permit for this facility, the Division removed requirements for monitoring opacity from the coal-fired boilers when the continuous opacity monitors were down based on comments that were received during the public comment period. However, based on comments received during the public comment period on other Title V permits for coal-fired boilers, the Division has determined that the alternate opacity monitoring requirements should be reinstated. Therefore, the Division is including alternate opacity monitoring requirements in Condition 12.4.6.

Although the coal-fired boilers are subject to continuous opacity monitoring requirements under 40 CFR Part 75, there are periods under Part 75 where monitor downtime is approved, such as periods of calibration, quality assurance and monitor repairs, and the Division recognizes that even equipment that is well operated and maintained can experience periods of down time. The alternate opacity language is in addition to the Part 75 monitoring requirements and is intended to provide credible evidence of compliance with the opacity emissions limitations in the permit when the opacity monitor is down.

The alternate opacity monitoring requirements specify three methods that the source may use to assess compliance with the opacity limits when the COMS is down for more than eight consecutive hours. These methods are back-up COMS, EPA Method 9 observations and an "opacity report during monitor unavailability". The back-up COMS and Method 9 observations are straight-forward and are based on the reference method testing. The "opacity report during monitor unavailability" is based on parametric monitoring. The language included in the permit requires that for the "opacity report during monitor unavailability" the permittee record the opacity monitoring reading before and after those periods that the COMS is unavailable. They must also record and maintain a description of operating characteristics that demonstrate the likelihood of compliance including, but not limited to, information related to the operation of the control equipment and any other operating parameters that may affect opacity. Past reports of this nature submitted for other PSCo facilities have noted such items as whether there were operational problems with or corrective maintenance conducted on the baghouse, whether the pressure differential was in the normal range, the unit operating load, and whether there were unit upsets. As previously stated, the "opacity report during monitor unavailability" is intended to provide credible evidence, regarding compliance with the opacity emissions limitations.

In the February 24, 1997 Federal Register, EPA promulgated credible evidence revisions to 40 CFR Parts 51, 52, 60 and 61. EPA states the following in the preamble to this final rule (page 8314, 3rd column):

> The credible evidence revisions are based on EPA's long-standing authority under the Act, and on amplified authority provided by the 1990 CAA Amendments. Section 113(a) of the Act authorizes EPA to

> bring an administrative, civil or criminal enforcement action "on the basis of any information available to the Administrator." In this provision, which predates the 1990 CAA Amendments, Congress gave EPA clear statutory authority to use any available information--not just data from reference tests or other federally promulgated or approved compliance methods--to prove CAA violations.

In addition, EPA stated that (page 8318, 1st column):

> To the contrary, with regard to sources subject to Title V permits, EPA generally expects that most if not all of the data that EPA would consider as potentially credible evidence of an emission violation at a unit subject to monitoring under the agency's proposed CAM rule would be generated through means of appropriate, well-designed parametric or emission monitoring submitted by the source itself and approved by the permitting authority, or through other requirements in the source's permit. Sources not subject to CAM should still be readily able to discern the information, for example information about the operation of pollution control devices, that is relevant to their compliance with applicable regulation.

Finally it should be noted that the alternative opacity monitoring language that is being put back into the revised Title V permit was in the original Title V permit issued for this facility (initial issuance May 1, 2001) and was in effect until issuance of the Title V renewal permit on April 1, 2009). The initial Title V permit went through a 30-day public comment period and a 45-day EPA review period prior to issuance. This revised permit will also go through a 30-day public comment period and a 45-day EPA review period.

In addition, the Division removed the note under Condition 12.4.5. The Division considers that the note it not necessary.

Section II.16 – Auxiliary Boiler

After the draft permit was sent to public comment, the source indicated that the auxiliary boiler burned natural gas, as well as distillate oil as fuel. The provisions for natural gas burning were included in the permit prior to sending it to EPA for their 45-day review period. No additional applicable requirements need to be added to the permit to allow for natural gas burning, therefore, the Division considers that this change would qualify as a minor modification and public comment would not be required for such a change.

In addition, the opacity requirements (Conditions 16.6 and 16.7) were combined into one condition. Language was added to indicate that a method 9 is not required if no No. 2 fuel oil is burned in the annual period and to indicated that if a method 9 indicates non-compliance, that non-compliance continues until a method 9 reading indicating compliance is conducted.

Condition 16.8 (case-by-case MACT) was renumbered as Condition 16.7.

CAM Requirements (Section II, Conditions 1.1.2 and Appendix G)

EPA did not comment on the CAM plan included in the Title V renewal permit for Hayden Station at the time the renewal permit was processed (the renewal was issued on April 1, 2009). However, EPA did comment on the CAM plan in the Title V permit for another coal-fired utility boiler that has a CAM plan that is virtually the same as the CAM plan for Hayden. Therefore, the Division is making the appropriate revisions to the CAM plan for Hayden in this modification to address EPA's concerns. EPA's concerns with the other Title V permit and the changes made to the Hayden permit are as follows:

As previously stated, the Division has included the baseline opacity value set by the performance test in this modified permit. EPA's had concerns with the other Title V permit because that permit did not specify that the baseline opacity was to be set within 180 days or require that the source submit the proposed baseline opacity and neither the permit nor the technical review document for the permit specified that the permit would be revised at a later date to include the actual value of the baseline opacity. The source conducted the performance tests on June 2 and 3, 2009 for Unit 2 and on June 16 and 17, 2009 for Unit 1 and began monitoring the 24-hour baseline opacities shortly afterwards. The renewal permit was issued on April 1, 2009; therefore, the CAM indicator ranges for the 24-hour opacity were set within 180 days. Since the 24-hour baseline opacity was set within 180 days, there is no reason to add language to the permit to specify that the initial baseline be determined within 180 days. The Division will however note in Section 1.1.2 that the initial baseline opacity was set and also include a requirement that the source submit any proposed baseline opacity determined from any subsequent performance tests and an application to modify the permit to reflect that new baseline opacity.

In their comments on the other Title V permit, EPA indicated that it was not appropriate to exclude startup, shutdown and malfunction data when determining the 24-hour average opacity values. Therefore, the Division has removed this from the CAM Plan (Appendix G – under Section III.c – Justification, Rational for Selection of Indicator Ranges).

In addition, EPA noted in their comments on the other Title V permit that neither the technical review document or the permit indicated whether the source submitted performance test data with their CAM plan and whether the Division accepted that performance test data. The Division has added language to the CAM Plan (Appendix G) in Section III.c - Justification, Rational for Selection of Indicator Ranges to address EPA's concern.

Finally, in their comments on the other Title V permit, EPA indicated that further justification of the 15% opacity indicator was necessary. Therefore, The Division has added language to the CAM Plan (Appendix G) in Section III.c - Justification, Rational for Selection of Indicator Ranges to further justify the 15% opacity indicator.

Section IV – Permit Shield

- Removed NSPS Subpart Y from Section 1 (non-applicable requirements). Although there are still some portions of the coal handling system that are not subject to NSPS Y, that information is clearly indicated in other portions of the permit.

Section V – General Conditions

- Added a version date to the General Conditions.

- The title for Condition 6 was changed from “Emission Standards for Asbestos” to “Emission Controls for Asbestos” and in the text the phrase “emission standards for asbestos” was changed to “asbestos control”.

Appendices

- Added gravel pit operations to the insignificant activity list in Appendix A.

- Added the baseline opacity levels to Appendix G (CAM plan).